

Interview Summary	Application No.	Applicant(s)	
	09/929,412	OUCHI, NORMAN KEN	
	Examiner	Art Unit	
	Scott L. Jarrett	3623	

All participants (applicant, applicant's representative, PTO personnel):

(1) Scott L. Jarrett. (3)_____

(2) Mr. Ouchi. (4)_____

Date of Interview: 09 August 2007.

Type: a) ☒ Telephonic b) ☐ Video Conference
c) ☐ Personal [copy given to: 1) ☐ applicant 2) ☐ applicant's representative]

Exhibit shown or demonstration conducted: d) ☐ Yes e) ☒ No.
If Yes, brief description: _____

Claim(s) discussed: 80,89 and 95.

Identification of prior art discussed: _____


Agreement with respect to the claims f) ☒ was reached. g) ☐ was not reached. h) ☐ N/A.

Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: Applicant provided examiner with an overview of the invention, see attached notes, and applicant and examiner discussed amendments to pending claims 80-99 in order to put the claims in condition for allowance. Agreement was reached as the the amendments to claims 80-99 and are being entered via an examiner's amendment.

(A fuller description, if necessary, and a copy of the amendments which the examiner agreed would render the claims allowable, if available, must be attached. Also, where no copy of the amendments that would render the claims allowable is available, a summary thereof must be attached.)

THE FORMAL WRITTEN REPLY TO THE LAST OFFICE ACTION MUST INCLUDE THE SUBSTANCE OF THE INTERVIEW. (See MPEP Section 713.04). If a reply to the last Office action has already been filed, APPLICANT IS GIVEN A NON-EXTENDABLE PERIOD OF THE LONGER OF ONE MONTH OR THIRTY DAYS FROM THIS INTERVIEW DATE, OR THE MAILING DATE OF THIS INTERVIEW SUMMARY FORM, WHICHEVER IS LATER, TO FILE A STATEMENT OF THE SUBSTANCE OF THE INTERVIEW. See Summary of Record of Interview requirements on reverse side or on attached sheet.

Examiner Note: You must sign this form unless it is an Attachment to a signed Office action.



 Examiner's signature, if required

Complied responses.

Discussion (November 11, 2005)

The invention is a workflow route step that, when included in a route, provides the user associated with the step the ability to specify subsequent route steps so that while the route is executing, the route can be adapted to a business process. The workflow system executes the step by step sequence of the route to the route step described by the present invention. The user can then specify the subsequent route steps and associated users and adapt the execution of the route.

Specifying the subsequent route steps is not meant to include selecting a conditional branch choice in the route by a Pass or Fail selection or similar fully specified set of route steps with a conditional branch.

Berg et al U. S. Patent 5,999,911 provides a system for designing and specifying a route for later execution. Berg does not disclose a route step that can be included in a route to adapt the execution of the route that has started execution.

Agrawal et al U. S. Patent 6,278,977 provides for determining the steps and sequence of steps so that these may be combined into a route for later execution. Agrawal does not disclose a route step that can be included in a route to adapt the execution of the route that has started execution.

Short Discussion (April 7, 2006)

The prior art describes route selection where the possible route paths are specified in the route and route adaptation by modification or adding execution paths. Route selection requires the route be designed with all of the potential route selections in the specification. The route designer must have significant process knowledge foresight and the route specification is large and complex. Route adaptation requires changing or adding execution paths, which requires sophisticated screens and tools, e.g. GUI based tools, and requires skills beyond the workflow user who understands the business processes but not changing dynamic workflows.

The present invention provides simple route structures avoiding the a priori route specification for selection and the complex route adaptation design tools and skills while providing the power to adapt the route during execution.

Discussion (September 18, 2006)

The present invention is different from eFlow and the prior art, performs a useful function, and the level of detail in the specification and figures is sufficient for implementation by one of ordinary skill.

1) eFlow is a workflow that includes a toolkit for use by programmers to add functions. eFlow does not implement the present invention nor describe a possible implementation using eFlow. eFlow does not provide an "out of the box" standard function for a route step and screen for an active route that provides selection of a route step from a list of a priori defined route steps such that the selected route step is dynamically included as a route step in the active route. Given the present disclosure, it may be possible to PROGRAM eFlow or add code to implement the present invention but this is possible for any workflow.

The applicant does not argue that the prior art adaptive workflow require the specification at design time of all potential routes. The applicant acknowledges the prior art provides design capabilities to adapt a route while active.

The applicant argues that the design capabilities of the prior art are TOO complex and not suitable for a large class of users and that the simpler adaptive workflow capability of the present invention provides capabilities more suited to these users.

Reference Figures 4 and 5 for the discussion. Sections [0025], [0027], [0028], and [0036] of the specification provide additional detail. The present invention is used for workflow routes that span multiple knowledge domains (separate sites in the examples) where no single person understands the entire process. Figure 5 illustrates the groups of individuals who use the workflow:

Group 51 are global account managers who determine the set of sites at which work is to be performed by selecting from the sties Y1, Y2, Y3 at node X of the route.

Group 52 represents two subgroups at a site: 1) production workers who are directed by the workflow and 2) Site key users who understand the site process and define a sub-route for the site process.

Groups 53 and 54 are similar groups at other sites.

The global account managers who execute the adaptive workflow step X are not workflow experts or programmers. These people can barely use e-mail or Excel. eFlow provides significant run-time route adaptation (programming) capabilities but require skills well beyond those of global account managers; use of generic service node/process service discovery, composite services and service selection rules, etc. for global account managers to adapt a route to assign work to a set of sites is well beyond

their skill level and job assignment. Selection of sites from a list of possible sites as illustrated as 46 in Figure 4 is the level of skill suited for global account managers and the vast majority of users of the workflow system. The global account managers create hundreds of routes per day. The eFlow route adaptation is too complex for their skill level and too time consuming. Also, rules based route adaptation of eFlow is not possible since the reasons for selecting sites and lines depend on too many external conditions, customer choice of site as one example. The process for the site key users who define the sub-routes must be easy too. The present invention is for use by mortal users.

2) An a priori route with all of the possible sub-routes could be constructed by linking the sub-routes and providing prior art multi-way branches at the selection nodes. This would work for simple routes and a small number of sites. However, the present invention is used in an environment of over 50 sites and over 500 manufacturing lines where the sites may be selected individually or in sets with parallel execution of the work at multiple sites. Sub-routes include selection nodes where site account managers assign work to manufacturing lines within a site. A single a priori route with combinations of 50 sites and 500 lines are too large to build and maintain. Envision the route 413 in Figure 4 with 50 nodes branching from node X and for each Y node, 10 site level branches, for a total of 500 potential sub-routes. The user combinations illustrated in each list for each node would be in the thousands and impossible to define in an a priori route. Recall that no one person knows the entire process and the composite route would require a large number of people to keep their portion up dated. In addition, each instance of an a priori compiled route of the entire process uses significant system resources while the dynamically constructed route requires only the sub-routes for that instance and the sub-routes are activated when selected which may be well after the start of the route. Also, the site key users change the sub-route for the site or line and these changes are reflected at the time of selection during execution not at the time of building the route. The inventor acknowledges that sub-route linking for compiling routes BEFORE route execution is prior art but not the present invention that provides a route step for selection and dynamic inclusion of a sub-route during the execution of a route. The user assignment screen 48 in Figure 4 illustrates dynamic route alteration by selecting the user of a route step from a list of potential users 49. The composite route

413 illustrates that the lists of potential users are tailored based on sub-route, site, and route step.

The inventor acknowledges that selecting a route step user from a list of potential route step users BEFORE route execution is prior art but not the present invention that provides for a route step for selecting a user for a subsequent route step during the execution of the route.

3) One of ordinary skill, given Figures 4 and 5 and the specification, could develop a program to implement the present invention including the selectable list of sub-routes and dynamic creation of routes. These description documents are as detailed as high level design specifications provided a program development team of ordinary skill. The current implementation of the invention was based on these documents. Routes and sub-routes are frequently implemented as double linked lists in a relational database route table where a route step is represented in a table row, including the links, workflow step function, route ID, and user. A second table provides rows that cross-reference a selectable sub-route and route ID to a site or label and an optional selection criteria field. A third table provides rows with the current location of a workflow in its corresponding route. The sub-route selection screen 46 in Figure 4 provides a screen that presents the list from the second table for the user to select a site or label. For each selection by the user of screen 46, the code for the screen copies the selected sub-route in the route table, connects the links of the copied sub-route to the active route, also in the route table, and adds a row to the third table that starts the copied sub-route. The selection criteria disclosed in [0028] describes tailoring the selection list based on site and level of the organization using the selection field in the second table.

One of ordinary skill may have to experiment as to how to best fit the design into an existing workflow program but not to implement the present invention.

In summary, the present invention is different from eFlow and the prior art, performs a useful function, and the level of detail in the specification and figures is sufficient for implementation by one of ordinary skill.

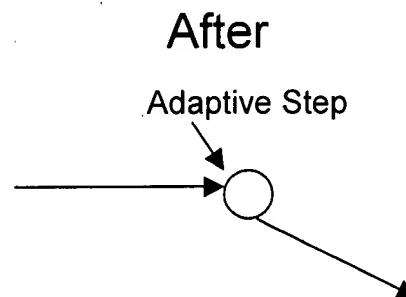
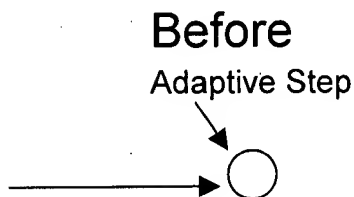
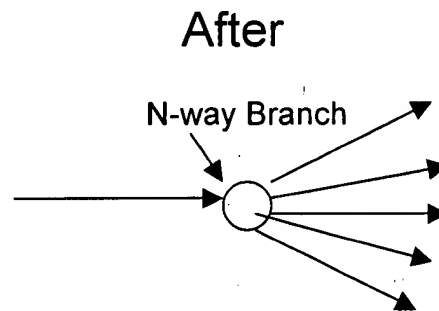
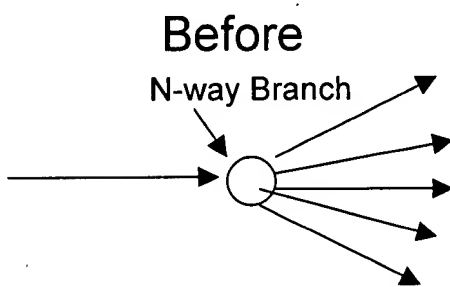
Discussion (December 25, 2006)

The inventor sincerely appreciates the thorough evaluation and assistance by the examiner. He also appreciates the examiner's patience and understanding.

The present invention provides an adaptive route step wherein a route step candidate is selected from a list and the route step candidate is **inserted into the route** to adapt the route. The route before the processing of the adaptive route step is different after the processing of the adaptive route step.

The Present Invention Is Different From Caruso

Caruso et al provides a route step to select an N-way branch where the route is the same before and after the selection route step. The route is not change.



The route for Caruso is illustrated as Before N-way Branch and After N-way Branch where the route is unchanged by processing the selection step. In the present invention the Before Adaptive Step has no successor step and the After Adaptive Step, the route now has the selected step as the successor step. The route is changed by the insertion of the selected step.

The Present Invention Provides Advantages over Caruso:

- 1) The user process is a simple selection as with the N-way Branch.

2) The system only requires resources for the route as it is created while processing and not the entire route with all possible branches as with the N-way branches. For small number of branch sets and few active routes, the impact on the system may not be significant. However, when there are large numbers of potential branches, potentially complex nested braches and many active routes, the system impact can be significant. This was described in the previous response.

3) As described in the specification, collaboration among global and local route developers (See paragraph [0025]) is more easily facilitated where with N-way branches the entire route must be managed as a single project where any change in a sub-route requires a change to the route. Global route management creates overhead, delays, and errors. The present invention does not require global route management where each sub-route is managed independently and locally. The division of the route responsibilities and independent sub-route management facilitates collaboration among separate groups.

The present invention is different from Caruso and provides advantages with an easy to use interface, conserves system resources, and facilitates global collaboration for creating and maintaining routes.

The Present Invention is different from Han, Yanbo et al

Han, Yanbo et al Paragraph 2, Page 7; Paragraph 1, Page 8; Section 4, Pages 7-8 describes meta-models and open-point approaches. In meta-models. "a set of primates is usually defined with which change operations can be performed to a workflow model or certain workflow instances". The present invention is different from meta-models. "Open-point approaches define special points in a workflow model where adaptation can be made. ... including provisions for multiple choices for users to choose, binding of certain resources at runtime, or provision of an open interface through which the so called 'late-modeling' can be made." Late modeling requires workflow route design capabilities and is different from the present invention.

Han, Yanbo et al does not suggest changes to the route in any mention of the multiple choices for users. In Han, Yanbo et al, all route changes use "late modeling". In paragraph 2 Page 9, Han, Yanbo et al further describes the issues with structural changes, changes to the route, and cautions strong controls to route changes. Han, Yanbo et al does not describe open-point multiple choices that makes route changes, Hence, the open-point multiple choices for Han, Yanbo et al is an N-way branch

selection similar to that described by Caruso. Han, Yanbo et al is different from the present invention.

The present invention is different from Caruso and Han, Yanbo et al and provides advantages with an easy to use interface, conserves system resources, and facilitates global collaboration for creating and maintaining routes.

Discussion (June 29, 2007)

In the prior art, the functions to create and execute a workflow route were separated into two distinct and separate phases: the creation of the route and the execution of the route by the workflow. The route creation tools create routes and the workflow executes the route. The prior art workflow does not adapt or alter the route while executing the route.

A similar separation exists in the creation and execution of programs where programs with specialized screens are used by programmers to develop a program and the resulting program provides functions and screens quite different from the program development program. The end users of the resulting program are quite different from those of the programmer in that the education, experience, and subject matter are very different for the programmer compared to the end user. The only classes of programs where the programmer and end user overlap are the development of programming tools. Even in these cases, the program development program is not used to alter itself while the program is executing.

The present invention discloses a careful overlap of the workflow route creation with the execution of the workflow route such that the route is adapted, actually changed, while the route is executing. The workflow of the present invention provides specific functions to adapt the route suitable for the skills and experience of the end user. The claims have been amended to specifically describe these functions.

The route adaptations are actual changes to the route structure and should not be mistaken for branching in a route that modifies the path of an instance through the route. The prior art provides complex branching capabilities including conditional branches, branches based on weights, parallel sub-routes, etc. However with one exception, all of these branches and sub-routes must be in the route when the route begins execution. The exception is described in the TeamWare Flow 3.1 User's Guide provided by the Examiner, on page 16 in the first paragraph starting on that page, "Process plans can even be modified while being performed, allowing people to start with incomplete plans and complete them as they go." Performing what is described requires great care,

attention, and skills as the route must be modified using the route creation tools while the route is executing. The users of the route must be cognizant of the route steps that have been created and what must be modified. The users must be aware of the "end of the world" so they don't fall off the end of the incomplete route. The users must have mastered the features and functions of TeamWARE Flow 3.1 or Ott or similar route creation tools. The User's Guide is 163 pages of programmer level text. Ott is 158 pages of programmer level text. Route creation is not for end users just as program development is not for end users. The users must be very aware of the state of execution of the route since altering route steps that are currently under execution can cause unpredictable results. The significant distinction of the prior art from the present invention is that for the prior art, the changes to the route are performed using the screens and functions provided by TeamWARE Flow 3.1 or Ott or other route creation program while for the present invention the user makes changes using the screens and functions of the workflow as directed by the route under execution to adapt the route. For the prior art, the users are not in the route execution workflow function when adapting the route. The prior art TeamWARE Flow 3.1 or Ott do not provide screens or functions for creating or modifying a route during execution in their library of route creation functions. That is, a designer cannot find in the prior art tools, an "adaptive node" as disclosed in the present invention to include in a route. The prior art workflow that execute these routes do not provide the "adaptive node" screens or functions. The present invention provides a carefully selected subset of the route creation functions as workflow provided screens and the workflow is augmented to provide these functions such that a route adapting node at a route step is executed by the end user to create the route step for subsequent execution. The route adapting is all within the workflow execution environment and the screens are designed to fit the skill level of the end user and not require the skill level of a route designer. The route designer uses a tool similar to Ott or TeamWARE Flow 3.1 to create the route to be completed during route execution. The route creation tool is augmented to provide the adapting node as one of the possible nodes for a route step. The route designer takes care so that the adapting node is at a route step in the route BEFORE the execution of the route step to be created. This avoids the "end of the world" problem and insures that the sub-route is adapted before it would be executed. The issues and problems encountered by creating partial routes and finishing them while executing are avoided because the route designer

provided the appropriate adapting node at a route step in the appropriate position in the route so the end user is not exposed to these hazards.

The adaptive node provides functions similar to a subset of the prior art route creation tools however these differ in that these functions are performed while the route is executing and the functions are provided by the workflow and not the route design tools. The present invention provides selected route adapting functions as route steps and the workflow has been augmented to provide these function so that end users can adapt the route while executing the route.

Copy of Claim 80. (Amended) A method for generating in real-time a workflow route from predefined workflow sub-routes while the route is executing in the workflow, comprising:
defining a route creation function augmented to provide an adaptive node;

defining and storing a set of local sub-routes in a sub-route library wherein each local sub-route comprises a sequence of nodes to perform locally a customer request;

defining a composite route comprising an initial node and a final node;

wherein the initial node is an adaptive node assigned to a key user and

provides a sub-route selection function;

defining a workflow providing the adaptive node for selecting a local sub-route from the sub-route library and inserting a copy of the selected local sub-route into the composite route and connecting the end of the selected local sub-route to the final node of the composite route;

executing the composite route in the workflow starting at the initial node, the adaptive node, wherein the key user selects an appropriate local sub-route from the sub-route library using the sub-route selection function to process the customer request;

the adaptive node automatically modifies the composite route in response to the key user's selection by inserting a copy of the selected local sub-route into the composite route and connecting the end of the selected local sub-route to the final node of the composite route;

executing the selected local sub-route until the composite route's final node is performed.

The independent claims 80, 89, and 95 have been amended to distinctly point out that the route creation function is augmented to provide creation of routes that include the adaptive node, the workflow is augmented to provide the adaptive node screens and functions, and the route is modified by the end user at the adaptive node while the route is executing

My Most Recent reading of Ott

Ott, Marcus Masters Thesis "Conceptual Design and Implementation of a Graphical Workflow-Modeling Editor in the Context of a Distributed Groupware-Databases", May 1994 pp 15-18.

Ott provides an extensive study of the workflow art.

Section 2.2.2 Semi-structured Processes (page 15) describes "The class of semi-structured processes combines elements from the standardized workflows described with elements from more flexible categories" where "the macro level determines the major layout of the process without defining details" of the micro level.

Ott discloses the use of predefined workflow within a task team and the use of predefined workflow from a library of workflow. Figure 2-9 (page 16) illustrates a predefined workflow of macro team tasks. The initial impression is that the present invention adaptive node is disclosed by Ott. However, an examination of Figure 2-10 and the preceding text: "When entering a team task at its entry point, the team manager will be notified." The team manager then initiates a local workflow and when complete returns to the macro workflow at the exit point. The local workflow is not integrated into the macro flow by the action of the team manager at the entry point node. The entry point node is NOT an adaptive node of the present invention.

Section 2.2.3 Workgroups (page 17) describes a shared database model where the members of the workgroup query a shared database to determine what work needs to be performed. There is no route in this adaptive process.

Section 2.2.4 Ad-Hoc workflow describes a process where the next person is sent an e-mail using a store and forward model or send model. There is no route in this adaptive process.

Jarrett, Scott L.

From: Ken Ouchi [Ken.Ouchi@Avidtecs.com]
Sent: Wednesday, August 01, 2007 7:55 PM
To: Jarrett, Scott L.
Subject: RE: 09/929,412 Claims for Discussion

Examiner Jarrett

I have complied all of my responses to the discussions we had in the correspondence for this application. You have examined a lot of literature including patents, disclosures, university papers, product publications, workflow standards, and industry publications. The search has been very extensive.

1) The search has not uncovered an adaptive node as disclosed in the present invention where the adaptive node is in the route prior to the segment of the route to be adapted, the route begins execution, when the adaptive node is executed by the workflow engine, the user of the node selects a sub-route and the workflow engine integrates the selected sub-route into the route at the segment to be adapted, and the route continues execution including the adapted segment. Note that the inclusion of the action of the workflow engine to make the adaptation further distinguishes the present invention from the "late modeling" where the design tool is used to modify the route.

2) We have had discussions how the adaptive node is different from a multi-way branch or selection where the paths are coded in the route prior to route execution.

3) We have had discussions how the adaptive node is different from ad-hoc workflow that has no route. E-mail based ad-hoc workflow is the frequent example.

4) We have had discussion how the adaptive node differs from workflow design systems that permit modification to the route while the route is executing. Han, Yanbo et al is an example of "late modeling" and describes that care and skill required when invoking the design tool while the route is executing. The present adaptive node does not require this level of skill nor endangers the execution of the route. Also, the workflow engine in Han, Yanbo, et al is not used to make the route modification.

In all of our discussions, there is no art that suggests the invention of claim 80. Please reconsider claim 80 with your suggested additions that explicitly describe the modification of the route while the route is executing.

You can respond by e-mail or by phone: 408-757-5862.

Thanks

Norman Ken Ouchi

8/14/2007